U.S. DEPARTMENT OF TRANSPORTATION NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

LABORATORY TEST PROCEDURE

FOR

FMVSS No. 206

Door Locks and Door Retention Components



SAFETY ASSURANCE
Office of Vehicle Safety Compliance
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Washington, DC 20590

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1. PURPOSE AND APPLICATION

The Office of Vehicle Safety Compliance (OVSC) provides contracted laboratories with Laboratory Test Procedures (TPs) which serve as guidelines for obtaining compliance test data. The data are used to determine if a specific vehicle or item of motor vehicle equipment meets the minimum performance requirements of the subject Federal Motor Vehicle Safety Standard (FMVSS). The purpose of the OVSC Laboratory Test Procedures is to present a uniform testing and data recording format, and provide suggestions for the use of specific equipment and procedures. Any contractor interpreting any part of an OVSC Laboratory Test Procedure to be in conflict with a Federal Motor Vehicle Safety Standard or observing any deficiencies in a Laboratory Test Procedure is required to advise the Contracting Officer's Technical Representative (COTR) and resolve the discrepancy prior to the start of compliance testing.

Contractors are required to submit a detailed test procedure to the COTR before initiating the compliance test program. The procedure must include a step-by-step description of the methodology to be used.

The OVSC Laboratory Test Procedures are not intended to limit or restrain a contractor from developing or utilizing any testing techniques or equipment, which will assist in procuring the required compliance test data.

NOTE: The OVSC Laboratory Test Procedures, prepared for use by independent laboratories under contract to conduct compliance tests for the OVSC, are not intended to limit the requirements of the applicable FMVSS(s). In some cases, the OVSC Laboratory Test Procedures do not include all of the various FMVSS minimum performance requirements. Sometimes, recognizing applicable test tolerances, the Test Procedures specify test conditions, which are less severe than the minimum requirements of the standards themselves. Therefore, compliance of a vehicle or item of motor vehicle equipment is not necessarily guaranteed if the manufacturer limits certification tests to those described in the OVSC Laboratory Test Procedures.

2. GENERAL REQUIREMENTS

Federal Motor Vehicle Safety Standard (FMVSS) No. 206 establishes minimum performance requirements for side and rear door locks and door retention components designed for use on motor vehicles. The purpose of Standard 206 is to minimize the likelihood of occupants being thrown from a vehicle as a result of impact. The standard applies to passenger cars, multipurpose passenger vehicles and trucks. This procedure provides requirements for compliance testing of motor vehicle door hinges and door locks and associated components to FMVSS 206. The following required tests are categorized by door type in FMVSS 206:

A. Hinged Side Doors, Except Cargo Type Doors

	FMVSS 206 Section	Test Procedure Section
Door latch, longitudinal load	S4.1.1.1	12.1.A & B
Door latch, transverse load	S4.1.1.2	12.1.C & D
Door hinge, longitudinal load	S4.1.2	12.1.E
Door hinge, transverse load	S4.1.2	12.1.F

B. Hinged Cargo-Type Side Doors

	FMVSS 206 Section	Test Procedure Section
Door latch, longitudinal load	S4.2.1.1	12.2.A
Door latch, transverse load	S4.2.1.2	12.2.B
Door hinge, longitudinal load	S4.2.2	12.2.C
Door hinge, transverse load	S4.2.2	12.2.D

C. Sliding Side Doors

	FMVSS 206 Section	Test Procedure Section
Transverse load	S4.3	12.3

D. Hinged Back Doors

	FMVSS 206 Section	Test Procedure Section
Door Latch, Load Test 1	S4.4.1.1	12.4.A & B
Door Latch, Load Test 2	S4.4.1.2	12.4.C & D
Door Latch, Load Test 3*	S4.4.1.3	12.4.E
Door Hinge, Load Test 1	S4.4.3.1	12.4.F
Door Hinge, Load Test 2	S4.4.3.2	12.4.G
Door Hinge, Load Test 3**	S4.4.3.3	12.4.H

E. Sliding Back Doors

	FMVSS 206 Section	Test Procedure Section
Longitudinal load test	S4.5	12.5

^{*} For back doors equipped with a latch and striker assembly at the bottom of the door and that open upward.

The test methods and procedures shall be based on the requirements of the following standards:

- A. FMVSS 206, effective October 1996 and amendments thereto
- B. SAE J839b, "Passenger Car Side Door Latch Systems", June 1991
- C. SAE J934, "Vehicle Passenger Door Hinge Systems", July 1982

Deviations - Any deviations to procedures shall be approved by the COTR in advance, entered in the laboratory's log book, and noted in the final test report. In all cases, FMVSS 206 takes precedence over the referenced SAE documents.

SYSTEM REQUIREMENTS

- A. Test system overall accuracy shall be capable of providing data accurate to 11,120 ± 110 Newtons (2,500 ± 25 pounds) and at 8,896 ± 88 Newtons (2,000 ± 20 pounds). The test system shall be calibrated after contract award, in all load ranges to be used, unless current calibration is less than six months old and covers the entire load ranges to be used.
- B. Continuous recordings of applied load shall be made during all tests. This does not include the 90 kilograms (200 pound) weight load on latches during longitudinal loading.

^{**} For back doors that open upward

- C. Equipment calibration shall be verified, following an apparent noncompliance unless otherwise approved by the COTR.
- D. Test fixtures shall be sufficiently stiff to prevent localized stress to the hinge systems, or to latch-striker in transverse pull.
- E. Test fixture and attachment shall be subject to NHTSA approval.
- F. The means of attachment of the sample to the test fixture shall be adequate to prevent failure of the attachment.
- G. Attachment bolt or screw heads shall be exactly the same size, shape and strength as used in attaching to the vehicle.
- H. Fixture surfaces shall mate at attachment points. Where mounting holes are countersunk on latch and striker, fixture surfaces shall be formed to provide close contact, with correct angle of countersink provided to latch/striker surface and to screw head.
- I. To obtain additional failure data on latch assemblies the application of loads greater than those specified in the standard may sometimes be required as an option. This additional loading is only to be applied after the PASS/FAIL judgment has been rendered in accordance with the loads specified in the standard. When this option is exercised, a reinforced fixture referenced below shall be utilized for the latch longitudinal test. Under this option, the tests shall be performed as specified elsewhere in this procedure with the exception that the optional loads shall be as specified in the applicable table.
- J. A reinforced test fixture may be used for the latch system tests in the longitudinal direction in lieu of the standard fixture. This fixture will be of the same general design as that specified in SAE recommended practice J839 except that the latch and striker mounting plates will be 0.25 inch thick and other parts of the fixture will be reinforced proportionately. Replacement of these plates when they become distorted through testing to the extent that mounting of the test system (latch/striker) is not feasible shall be the responsibility of the Contractor. Maintenance of these fixtures, if required, shall also be the responsibility of the contractor during the life of the contract.

APPLIED TEST LOADS

The loads to be applied during the conduct of the normal tests are specified in the following tables. The loads specified are nominally greater than those specified in S206 in order to assure that the devices are at least exposed to the required load but provide an upper limit to the test while also providing an indication of the degree of margin in the strength of the items under test. The PASS/FAIL determination shall be based only upon the required loads specified in the standard, which are also given in the tables shown on the following pages.

2.1 NORMAL APPLIED TEST LOADS

A. Hinged Side Doors, Except Cargo Type Doors

	LOAD REQUIRED, Newtons (Lb _f)	NORMAL APPLIED LOAD, Newtons (Lb _f)
Door latch and striker assembly, longitudinal load test, fully latched position.	11,000 (2,500)	13,789 (3100)
Door latch and striker assembly, longitudinal load test, secondary latched position.	4,450 (1,000)	7,117 (1,600)
Door latch and striker assembly, transverse load test, fully latched position.	8,900 (2,000)	11,565 (2,600)
Door latch and striker assembly, transverse load test, secondary latched position.	4,450 (1,000)	7,117 (1,600)
Door hinge system, longitudinal load test	11,000 (2,500)	13,789 (3,100)
Door hinge system, transverse load test	8,900 (2,000)	11,565 (2,600)

B. Hinged Cargo-Type Side Doors

	LOAD REQUIRED, Newtons (Lb _f)	NORMAL APPLIED LOAD, Newtons (Lb _f)
Door latch and striker assembly, longitudinal load test, fully latched position.	11,000 (2,500)	13,789 (3100)
Door latch and striker assembly, transverse load test, fully latched position.	8,900 (2,000)	11,565 (2,600)
Door hinge system, longitudinal load test	11,000 (2,500)	13,789 (3,100)
Door hinge system, transverse load test	8,900 (2,000)	11,565 (2,600)

C. Sliding Side Doors

	LOAD REQUIRED,	NORMAL APPLIED LOAD,
	Newtons (Lb _f)	Newtons (Lb _f)
Transverse load test	17,800 (4,000)	Reserved

D. Hinged Back Doors

	-	
	LOAD REQUIRED, N (Lb _f)	NORMAL APPLIED LOAD, N (Lb _f)
Door latch and striker assembly, load test 1, fully latched position.	11,000 (2,500)	13,789 (3100)
Door latch and striker assembly, load test 1, secondary latched position.	4,450 (1,000)	7,117 (1,600)
Door latch and striker assembly, load test 2, fully latched position.	8,900 (2,000)	11,565 (2,600)
Door latch and striker assembly, load test 2, secondary latched position.	4,450 (1,000)	7,117 (1,600)
Door latch and striker assembly, load test 3, fully latched position.*	8,900 (2,000)	11,565 (2,600)
Door hinge system, load test 1	11,000 (2,500)	13,789 (3,100)
Door hinge system, load test 2	8,900 (2,000)	11,565 (2,600)
Door hinge system, load test 3**	8,900 (2,000)	11,565 (2,600)

E. Sliding Back Doors

	LOAD REQUIRED,	NORMAL APPLIED LOAD,
	Newtons (Lb _f)	Newtons (Lb _f)
Longitudinal load test	17,800 (4,000)	Reserved

^{*} For back doors equipped with a latch and striker assembly at the bottom of the door and that open upwards.

^{**} For back doors that open upward

2.2 ULTIMATE TEST LOADS

A. Hinged Side Doors, Except Cargo Type Doors

	LOAD REQUIRED Newtons (Lb _f)	ULTIMATE APPLIED LOAD, Newtons (Lb _f)
Door latch and striker assembly, longitudinal load test, fully latched position.	11,000 (2,500)	42,250 (9,500)
Door latch and striker assembly, longitudinal load test, secondary latched position.	4,450 (1,000)	42,250 (9,500)
Door latch and striker assembly, transverse load test, primary latched position.	8,900 (2,000)	42,250 (9,500)
Door latch and striker assembly, transverse load test, secondary latched position.	4,450 (1,000)	42,250 (9,500)
Door hinge system, longitudinal load test	11,000 (2,500)	13,789 (3,100)
Door hinge system, transverse load test	8,900 (2,000)	11,565 (2,600)

B. Hinged Cargo-Type Side Doors

	LOAD REQUIRED Newtons (Lb _f)	ULTIMATE APPLIED LOAD Newtons (Lb _f)
Door latch and striker assembly, longitudinal load test, fully latched position	11,000 (2,500)	42,250 (9,500)
Door latch and striker assembly, transverse load test, fully latched position.	8,900 (2,000)	42,250 (9,500)
Door hinge system, longitudinal load test	11,000 (2,500)	13,789 (3,100)
Door hinge system, transverse load test	8,900 (2,000)	11,565 (2,600)

C. Sliding Side Doors

	LOAD REQUIRED,	ULTIMATE APPLIED LOAD,
	Newtons (Lb _f)	Newtons (Lb _f)
Transverse load test	17,800 (4,000)	Reserved

D. Hinged Back Doors

	LOAD REQUIRED, N (Lb _f)	ULTIMATE APPLIED LOAD, N (Lb _f)
Door latch and striker assembly, load test 1, fully latched position	11,000 (2,500)	42,250 (9,500)
Door latch and striker assembly, load test 1, secondary latched position	4,450 (1,000)	42,250 (9,500)
Door latch and striker assembly, load test 2, fully latched position	8,900 (2,000)	42,250 (9,500)
Door latch and striker assembly, load test 2, secondary latched position	4,450 (1,000)	42,250 (9,500)
Door latch and striker assembly, load test 3, fully latched position*	8,900 (2,000)	42,250 (9,500)
Door hinge system, load test 1**.	11,000 (2,500)	13,789 (3,100)
Door hinge system, load test 2	8,900 (2,000)	11,565 (2,600)
Door hinge system, load test 3***	8,900 (2,000)	11,565 (2,600)

E. Sliding Back Doors

	LOAD REQUIRED,	NORMAL APPLIED LOAD,
	Newtons (Lb _f)	Newtons (Lb _f)
Longitudinal load test	17,800 (4,000)	Reserved

^{*} For back doors equipped with a latch and striker assembly at the bottom of the door and that open upward.

^{**} In some circumstances, it may be necessary to conduct evaluations of individual hinges in a hinge system. In that case, an individual hinge in a two-hinge system must be capable of withstanding 50% of the load requirements of the total system.

^{***} For back doors that open upward

3. SECURITY

The contractor shall provide appropriate security measures to protect the OVSC test equipment from unauthorized personnel during the entire compliance-testing program. The contractor is financially responsible for any acts of theft and/or vandalism, which occur during the storage of test equipment. Any security problems, which arise, shall be reported by telephone to the Industrial Property Manager (IPM), Office of Contracts and Procurement, within two (2) working days after the incident. A letter containing specific details of the security problem will be sent to the IPM (with copy to the COTR) within 48 hours.

The contractor shall protect and segregate the data that evolves from compliance testing before and after each test. No information concerning the safety compliance-testing program shall be released to anyone except the COTR, unless specifically authorized by the COTR, the COTR's Branch or Division Chief, or by the Contracting Officer.

NOTE: NO INDIVIDUALS, OTHER THAN CONTRACTOR PERSONNEL, SHALL BE ALLOWED TO WITNESS ANY COMPLIANCE TEST UNLESS SPECIFICALLY AUTHORIZED BY THE COTR.

4. GOOD HOUSEKEEPING

Contractors shall maintain the entire equipment compliance testing area, test fixtures and instrumentation in a neat and clean condition with test instruments arranged in an orderly manner consistent with good test laboratory housekeeping practices.

5. TEST SCHEDULING AND MONITORING

The contractor shall submit a test schedule to the COTR prior to testing. Tests shall be completed as required in the contract. All testing shall be coordinated to allow monitoring by the COTR.

6. TEST DATA DISPOSITION

The contractor shall make all equipment preliminary compliance test data available to the COTR on location within four hours after the test. Final test data, including digital printouts and computer generated plots (if applicable), shall be furnished to the COTR in accordance with the contract schedule.

All backup data sheets, strip charts, recordings, plots, technicians notes, etc., shall be retained by the contractor for a minimum of five years after conclusion of each delivery order, purchase order, etc. The COTR shall direct final disposition at that time.

7. GOVERNMENT FURNISHED TEST ITEMS (GFTI)

TEST SAMPLE IDENTIFICATION AND STORAGE

Upon receipt at the laboratory, the items to be tested shall be assigned laboratory test group numbers and shall also be tagged, when known, with the vehicle model year, make and model, location (in vehicle), and sample name and part number.

EXAMPLE: 1992 XYZ Safe Rider 2-door coupe left front door hinge

An inventory shall be made of the number, name and condition of samples received.

The test samples shall be stored in a dry, clean, dust free area specifically designated by the Laboratory Project Manager.

8. CALIBRATION OF TEST INSTRUMENTS

Before the contractor initiates the safety compliance test program, a test instrumentation calibration system will be implemented and maintained in accordance with established calibration practices. Guidelines for setting up and maintaining such calibration systems are described in MIL-C-45662A, "Calibration System Requirements". The calibration system shall be set up and maintained as follows:

- A. Standards for calibrating the measuring and test equipment will be stored and used under appropriate environmental conditions to assure their accuracy and stability.
- B. All measuring instruments and standards shall be calibrated by the contractor, or a commercial facility, against a higher order standard at periodic intervals NOT TO EXCEED TWELVE (12) MONTHS except for static types of measuring devices such as rulers, weights, etc., which shall be calibrated at periodic intervals not to exceed two (2) years. Records, showing the calibration traceability to the National Institute of Standards and Technology (NIST), shall be maintained for all measuring and test equipment.
- C. All measuring and test equipment and measuring standards will be labeled with the following information:
 - (1) Date of calibration
 - (2) Date of next scheduled calibration
- D. A written calibration procedure shall be provided by the contractor, which includes as a minimum the following information for all measurement and test equipment unless the calibration is performed by a licensed commercial facility.
 - (1) Type of equipment, manufacturer, model number, etc.

8. CALIBRATION OF TEST INSTRUMENTS....Continued

- (2) Measurement range
- (3) Accuracy
- (4) Calibration interval
- (5) Type of standard used to calibrate the equipment (calibration traceability of the standard must be evident)
- E. Records of calibration for all test instrumentation shall be kept by the contractor in a manner, which assures the maintenance of established calibration schedules. All such records shall be readily available for inspection when requested by the COTR. The calibration system will need the acceptance of the COTR before the test program commences.

9. PHOTOGRAPHIC DOCUMENTATION

Each final test report shall include 35mm photographs (minimum size 8×10 inches) of the test setup used for each phase of testing. One set of original photographs shall be included in the final test report, which will be used for optical scanning by the OVSC. Other copies of the final test report may contain multilith or other suitable photographic copies of the original photographs.

10. DEFINITIONS

None.

11. PRETEST REQUIREMENTS

IN-HOUSE TEST PROCEDURE

Prior to conducting any compliance test, contractors are required to submit a detailed in-house compliance test procedure to the COTR, which includes a step-by-step description of the methodology to be used. Written approval must be obtained from the COTR before initiating the compliance test program so that all parties are in agreement. The in-house procedure shall contain the following:

- A. Sample tagging or marking system
- B. Sample storage
- C. Testing setup
- D. Testing procedure (step-by-step)

11. PRETEST REQUIREMENTS....Continued

- E. Data acquisition and recording
- F. Setup photographs
- G. Failure sample photograph showing sample before and after testing, and illustrating point of failure.
- H. Failure description

TEST DATA LOSS

A compliance test is not to be conducted unless all of the various test conditions specified in the applicable OVSC Laboratory Test Procedure have been met. Failure of a contractor to obtain the required test data and to maintain acceptable limits on test parameters in the manner outlined in the applicable OVSC Laboratory Test Procedure may require a retest at the expense of the contractor. The retest costs will include the cost of the replacement item of motor vehicle equipment and all costs associated with conducting the retest. The original test specimen used for the invalid test shall remain the property of OVSC, and the retest specimen shall remain the property of the contractor. If there is a test failure, the contractor shall retain the retest specimen for a period not exceeding two (2) years. If there is no test failure, the Contractor may dispose of the test specimen upon notification from the COTR that the final test report has been accepted.

The Contracting Officer of NHTSA is the only NHTSA official authorized to notify the contractor that a retest is required. The retest shall be completed within two (2) weeks after receipt of replacement equipment and notification by the Contracting Officer that a retest is required which ever is later. If a retest is conducted, no test report is required for the original test.

TEST CONDITIONS

Unless otherwise specified, all tests and measurements shall be conducted under the following environmental conditions:

A. Temperature: $75^{\circ}F \pm 15^{\circ}F$

B. Relative Humidity: 50% ± 10%

C. Atmospheric Pressure: 28 to 32 inches of mercury

Continuous recording of environmental temperature and relative humidity of the testing area shall be available during all tests. Test samples, unless otherwise specified, shall be stabilized at test room ambient conditions for a period of at least 24 hours immediately prior to testing.

11. PRETEST REQUIREMENTS....Continued

TEST PERSONNEL PERFORMANCE

Personnel supervising and/or performing the compliance test program shall be thoroughly familiar with the requirements, test conditions, equipment for the test to be conducted, and safety requirements.

RECORDING OF TEST DATA

Environmental data and test data shall be recorded on permanent strip charts, circular recording charts, or other acceptable print-out media. Where permanent trace recording is not required, data will be recorded on standard report forms. Changes or corrections shall be made by drawing a line through the original entry, which must still remain legible, and adding the change alongside.

Data will be submitted on the Test Data Sheet forms specified for use in the final test report. Data will be typed before the sheets are submitted. One set of Inspection and Test Data sheets shall be completed for each vehicle manufacturer. The following are requirements for each inspection entry:

FOR HINGES -

- A. VEHICLE MANUFACTURER the manufacturer of the vehicle for which the test samples were intended including address
- B. HINGE MANUFACTURER include the name and address of manufacturers of hinge assemblies, if known, and if other than the vehicle manufacturer
- C. HINGE MARKINGS all letters, numbers and trade marks
- D. APPARENT MATERIALS apparent materials of hinge body, pin, and attaching hardware if present. Material determination is to be by visual observation and magnet. Plated materials are to be scratched in an unstressed area to see base material.
- E. DESCRIPTION include the following:
 - (1) Overall dimensions
 - (2) Probable method of fabrication
 - (3) Whether stamped and bent or cast, etc.

Describe configuration (flat, offset) type of mounting or attachment.

11. PRETEST REQUIREMENTS....Continued

FOR LATCHES -

- A. LATCH MANUFACTURER same information as for HINGES
- B. LATCH MARKINGS all letters, numbers and trade marks
- C. APPARENT MATERIALS same requirements as for HINGES
- D. DESCRIPTION dimensions, type of mechanism, fabrication and method of attachment

Any unusual or significant observations shall be added on the bottom of the Test Data Sheets. Any spaces not entered on the data forms shall be marked "N/A".

12. COMPLIANCE TEST EXECUTION

12.1 HINGED SIDE DOORS, EXCEPT CARGO-TYPE DOORS

A. Door Latch Longitudinal Load, Fully Latched Position (see Figure 1).

DOOR LATCH STATIC LOAD TEST FIXTURE (LONGITUDINAL LOAD)

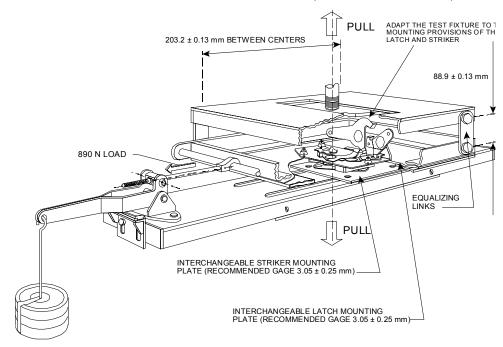


FIGURE 1

- (1) Position latch and striker on the test fixture to satisfy the following requirements:
 - (A) The tensile force when applied in step (6) will be perpendicular to the face of the latch.
 - (B) The tensile force will stress the latch and striker in the vehicle longitudinal direction.
- (2) Attach the latch and striker to the test fixture as positioned in the preceding step.
- (3) Engage latch and striker in the fully latched position.
- (4) Apply an 890 N (200 Lbf) force to the latch, to load the latch and striker in the vehicle transverse, door-opening direction.

- (5) While operating the recorder, apply the tensile force at a rate not to exceed 0.2 inches per minute up to the loads given in table 2.1.A, or until failure. Record the condition of the test items at the conclusion of the test.
- B. Door Latch Longitudinal Load, Secondary Latched Position.
 - (1) See Figure 1. Position latch and striker on the test fixture to satisfy the following requirements:
 - (A) The tensile force when applied in step (5) will be perpendicular to the face of the latch.
 - (B) The tensile force will stress latch and striker in the vehicle longitudinal direction.
 - (2) Attach latch and striker to the test fixture as positioned in the preceding step.
 - (3) Engage latch and striker in secondary latched position.
 - (4) Apply an 890 N (200 Lbf) force to the latch, to load latch and striker in the vehicle-transverse, door-opening direction.
 - (5) While operating the recorder, apply the tensile force at a rate not to exceed 0.2 inches per minute up to the loads given in table 2.1.A, or until failure. Record the condition of the test items at the conclusion of the test.
- C. Door Latch Transverse Load, Fully Latched Position.
 - (1) See Figure 2.

Position latch and striker on the test fixture to satisfy the following requirements:

- (A) The tensile force when applied in step (4) will be in line with the contacting surfaces of latch and striker.
- (B) The tensile force will stress the latch and striker in the vehicle-transverse, door-opening direction.
- (2) Attach latch and striker to the test fixture as positioned in the preceding step.
- (3) Engage latch and striker in the fully latched position.

DOOR LATCH - STATIC LOAD FIXTURE (TRANSVERSE LOAD)

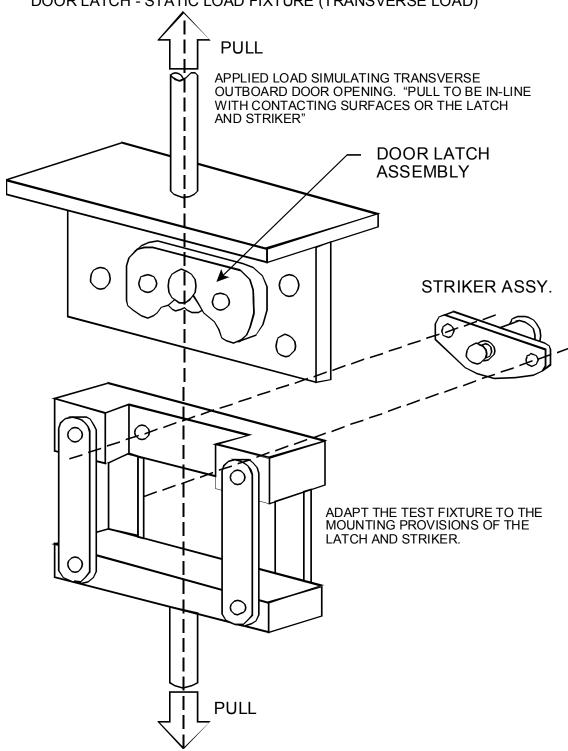


FIGURE 2

- (4) While operating the recorder, apply the tensile force at a rate not to exceed 0.2 inches per minute up to the loads given in table 2.1.A, or until failure. Record the condition of the test items at the conclusion of the test.
- D. Door Latch Transverse Load, Secondary Latched Position.
 - (1) See Figure 2. Position latch and striker on the test fixture to satisfy the following requirements:
 - (A) The tensile force when applied in Step 4 will be in line with the contacting surfaces of latch and striker.
 - (B) The tensile force will stress the latch and striker in the vehicle-transverse, door-opening direction.
 - (2) Attach the latch and striker to the test fixture as positioned in the preceding step.
 - (3) Engage latch and striker in secondary latched position.
 - (4) While operating the recorder, apply the tensile force at a rate not to exceed 0.2 inches per minute up to the loads given in Table 2.1.A, or until failure. Record the condition of the test items at the conclusion of the test.
- E. Door Hinge Longitudinal Load Test
 - (1) See Figures 3 and 4. Position the hinge system for the door on the test fixture in the closed-door attitude.

Full Length (Piano) Hinge – attach the hinge on the test fixture to satisfy the following requirements:

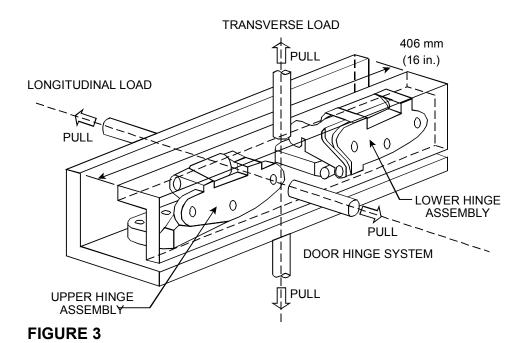
- (A) The line of application of tensile force shall bisect the engaged portion of the hinge pin at right angles.
- (B) The tensile force, when applied, will stress the hinge system in the vehicle longitudinal direction.

Multiple Assembly Hinge System – attach the hinge assemblies on the test fixture to satisfy the following requirements:

(A) The hinge pins shall be in a straight line.

- (B) The distance between further ends of adjacent hinges shall be 406 mm (16 in.) or as actually spaced in the vehicle, whichever is less.
- (C) A line joining the mid-points of the engaged portions of the two outermost hinge pins shall be bisects the line of application of tensile force at right angles.
- (2) The tensile force, when applied, will stress the hinge system in the vehicle longitudinal direction (see Figure 3).

HINGE STATIC LOAD FIXTURE (TRANSVERSE & LONGITUDINAL LOAD)



- (3) While operating the recorder, apply tensile force at a rate not to exceed 0.2 inches per minute up to the value specified in table 2.1.A, or until failure. Note the hinge condition on the data sheet.
- F. Door Hinge Transverse Load Test
 - (1) See Figures 3 and 4, and SAE Recommended Practice J934 (July 1982). Position the hinge system for one door on the test fixture in the closed-door attitude.

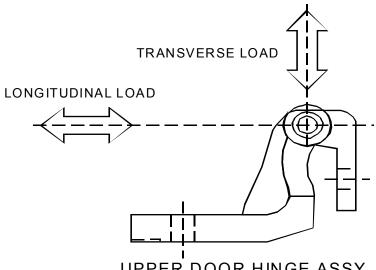
Full Length (Piano) Hinge - attach the hinge to satisfy the following requirements:

- (A) The engaged length of the hinge pin is bisected by the line of application of the tensile force at right angles.
- (B) The hinge assembly will be stressed in the vehicle transverse direction.

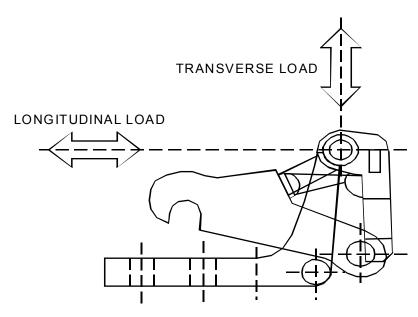
Multiple Assembly Hinge System - attach the hinge assemblies on the test fixture to satisfy the following requirements:

- (A) The hinge pins shall be in a straight line.
- (B) The distance between further ends of adjacent hinges shall be 406 mm (16 in.) or as actually spaced in the vehicle, whichever is less.
- (C) A line joining the mid-points of the engaged portions of the two outermost hinge pins shall be bisected at right angles by the line of application of tensile force.
- (2) The tensile force, when applied, will stress the hinge system in the vehicle-transverse direction.
- (3) While operating the recorder, apply tensile force at a rate not to exceed 0.2 inches per minute up to the value specified in table 2.1.A, or until failure. Note the hinge condition on the data sheet.

12. **COMPLIANCE TEST EXECUTION....Continued** HINGE LOAD APPLICATION DIRECTIONS



UPPER DOOR HINGE ASSY.



LOWER DOOR HINGE ASSY.

FIGURE 4

NOTE: The relative position of the hinge elements shown is for illustrative purposes only. The hinges must be positioned as in the closed-door position and tested in either the vehicle longitudinal or transverse direction as appropriate.

HINGED CARGO-TYPE SIDE DOORS 12.2

A. Door Latch Longitudinal Load, Fully Latched Position.

> Refer to Figure 1 and Section 12.1. A for testing procedure. Refer to Table 2.1.B, for normal applied test loads or Table 2.2.B, for ultimate test loads.

B. Door Latch Transverse Load, Fully Latched Position.

Refer to Figure 2 and Section 12.1. C for testing procedure. Refer to Table 2.1.B for normal applied test loads or Table 2.2.B, for ultimate test loads.

C. Door Hinge Longitudinal Load Test

Refer to Figures 3 and 4 and Section 12.1. E, for testing procedure. Refer to Table 2.1.B for normal applied test loads or Table 2.2.B for ultimate test loads.

D. Door Hinge Transverse Load Test

Refer to Figures 3 and 4 and section 12.1. F for testing procedure. Refer to Table 2.1.B for normal applied test loads or Table 2.2.B, for ultimate test loads.

12.3 SLIDING SIDE DOORS TRANSVERSE LOAD TEST

RESERVED

12.4 HINGED BACK DOORS

A. Load Test 1, Fully Latched Position

Refer to Figure 1 and Section 12.1.A for testing procedure (except for A(1)(B)) (the force is to be applied perpendicular to the face of the latch) and Figure 6. Refer to Table 2.1.D for normal applied test loads or Table 2.2.D for ultimate test loads.

B. Load Test 1, Secondary Latched Position.

Refer to Figure 1 and Section 12.1.B for testing procedure (except for B(1)(B)) (the force is to be applied perpendicular to the face of the latch), and Figure 6. Refer to Table 2.1.D for normal applied test loads or Table 2.2.D for ultimate test loads.

C. Load Test 2, Fully Latched Position.

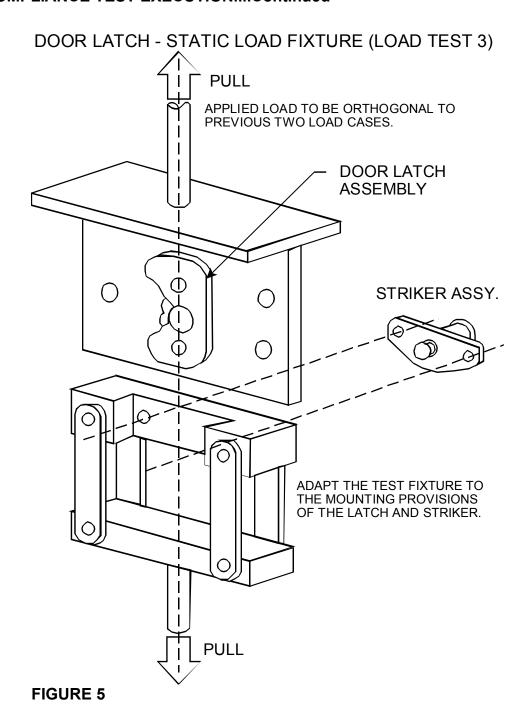
Refer to Figure 2 and Section 12.1.C for testing procedure (except for C(1)(B)) and Figure 6. (The force is to be applied in the direction of the fork-bolt opening and parallel to the face of the latch). Refer to Table 2.1.D for normal applied test loads or Table 2.2.D for ultimate test loads.

D. Load Test 2, Secondary Latched Position

Refer to Figure 2 and Section 12.1.D for testing procedure (except for D(1)(B)), and Figure 6 (The force is to be applied in the direction of the fork-bolt opening and parallel to the face of the latch). Refer to Table 2.1.D for normal applied test loads or table 2.2.D for ultimate test loads.

- E. Load Test 3, Fully Latched Position (for back doors that open upward equipped with a latch and striker assembly at the bottom of the door).
 - (1) See Figures 5 and 6.
 - (2) Position latch and striker on the test fixture to satisfy the following requirements.
 - (A) The tensile force, when applied in Step 5, will be in line with the contacting surfaces of latch and striker.
 - (B) The tensile force will stress the latch and striker in a direction that is orthogonal to the load directions specified in Load Test 1 and Load Test 2.
 - (3) Attach latch and striker to the test fixture as positioned in the preceding step.
 - (4) Engage latch and striker in fully latched position.
 - (5) While operating the recorder, apply the tensile force at rate not to exceed 0.2 inches per minute up to the loads given in Table 2.1.D or until failure. Record the condition of the test items at the conclusion of the test.
- F. Door Hinge Load Test 1.

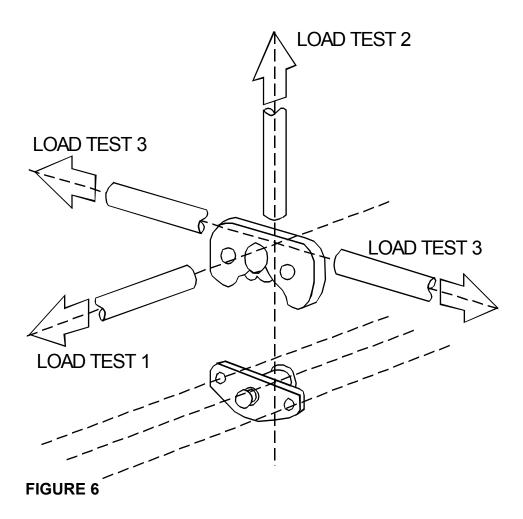
Refer to Figures 3 and 4, Section 12.1.E, for testing procedure (except for E(1)(B)), and Figure 7. Refer to Table 2.1.D for normal applied test loads or Table 2.2.D for ultimate test loads. The force is to be applied in a direction perpendicular to the hinge face-plate (The hinge face plate is the side of the hinge that attaches to the body of the vehicle).



G. Door Hinge Load Test 2.

Refer to Figures 3 and 4, Section 12.1.F, for testing procedure (except for F(1)(B)), and Figure 7. Refer to Table 2.1.D for normal applied test loads or Table 2.2.D for ultimate test loads. The force is to be applied perpendicular to axis of the hinge pin and parallel to the hinge face plate such that the hinge plates are not compressed against each other.

REAR DOOR LATCH STATIC LOAD TEST DIRECTIONS



- H. Door Hinge Load Test 3 (For Rear Doors That Open Upward)
 - (1) Refer to Figures 3 and 7. Position the hinge system for one door on the test fixture in the closed-door attitude. Due to orientation and test equipment limitations, the required hinge separation may not be possible.

Full Length (Piano) Hinge - attach the hinge to satisfy the following requirements:

- (A) The engaged length of the hinge pin is in line with application of the tensile force.
- (B) The hinge assembly will be stressed in the direction of the axis of the hinge pin.

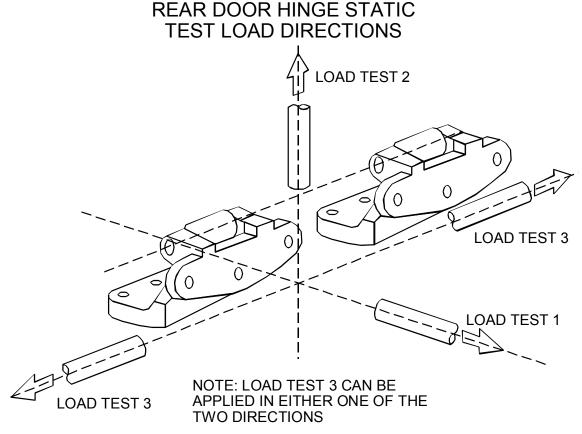


FIGURE 7

NOTE: The relative position of the hinge elements shown is for illustrative purposes only. The hinge must be positioned in the closed door position and tested either perpendicular or parallel to the face plate as appropriate.

Multiple Assembly Hinge System - attach the hinge assemblies on the test fixture to satisfy the following requirements:

(A) The hinge pins shall be in a straight line.

- (B) The distance between further ends of adjacent hinges shall be 406 mm (16 in) or as actually spaced in the vehicle, whichever is less. Due to hinge orientation the testing of a single hinge is permissible.
- (C) A line joining the mid-points of the engaged portions of the two outermost hinge pins shall be parallel to the line of application of tensile force.
- (2) The tensile force, when applied, will stress the hinge system in the hinge axis direction.
- (3) While operating the recorder, apply tensile force at a rate not to exceed 0.2 inches per minute up to the value specified in table 2.1.D, or Table 2.2.D. Note the hinge condition on the data sheet.

12.5 SLIDING BACK DOOR LONGITUDINAL LOAD TEST

RESERVED

13. POST TEST REQUIREMENTS

The contractor shall re-verify all instrumentation and checks data sheets and photographs. Make sure data is recorded in all data blocks on every compliance test data sheet.

14. REPORTS

14.1 MONTHLY STATUS REPORTS

The contractor shall submit a monthly Test Status Report and an Equipment Status Report to the COTR. The Equipment Status Report shall be submitted until all final reports are accepted. Samples of the required Monthly Status Reports are contained in the report forms section.

14.2 APPARENT TEST FAILURE

Any indication of a test failure shall be communicated by telephone to the COTR within one (1) working day with written notification mailed within two (2) working days. A Notice of Test Failure (see report forms section) with a copy of the particular compliance test data sheet(s) shall be included.

In the event of a test failure, a post test calibration check of some critically sensitive test equipment and instrumentation may be required for verification of accuracy. The necessity for the calibration shall be at the COTR's discretion and shall be performed without additional costs to the OVSC.

14.3 FINAL TEST REPORTS

14.3.1 COPIES

In the case of a test failure, SEVEN copies of the Final Test Report shall be submitted to the COTR for acceptance within three (3) weeks of test completion. The Final Test Report format to be used by all contractors can be found in the attachment.

Where there has been no indication of a test failure, FOUR copies of each Final Test Report shall be submitted to the COTR within three (3) weeks of test completion. Payment of contractor's invoices for completed compliance tests may be withheld until the Final Test Report is accepted by the COTR. Contractors are requested to NOT submit invoices before submitting copies of the Final Test Report.

Contractors are required to submit the first Final Test Report in typed draft form within two (2) weeks after the compliance test is conducted. The contractor and the COTR will then be able to discuss the details of both test conduct and report content early in the compliance test program.

Contractors are required to PROOF READ all Final Test Reports before submittal to the COTR. The OVSC will not act as a report quality control office for contractors. Reports containing a significant number of errors will be returned to the contractor for correction, and a "hold" will be placed on invoice payment for the particular test.

14.3.2 REQUIREMENTS

The Final Test Report, associated documentation (including photographs) are relied upon as the chronicle of the compliance test. The Final Test Report will be released to the public domain after review and acceptance by the COTR. For these reasons, each final report must be a complete document capable of standing by itself.

The contractor should use detailed descriptions of all compliance test events. Any events that are not directly associated with the standard but are of technical interest should also be included. The contractor should include as much detail as possible in the report.

Instructions for the preparation of the first three (3) pages of the final test report are provided below for the purpose of standardization.

14.3.3 FIRST THREE PAGES

A. FRONT COVER

A heavy paperback cover (or transparency) shall be provided for the protection of the final report. The information required on the cover is as follows:

(1) Final Report Number such as 206-ABC-9X-001, where –

206 is the FMVSS tested
ABC are the initials for the laboratory
9X is the Fiscal Year of the test program (or 0X after year 1999)
001 is the Group Number (001 for the 1st brand,
002 for the 2nd brand, etc.)

(2) Final Report Title And Subtitle such as:

SAFETY COMPLIANCE TESTING FOR FMVSS 206
Door Locks and Door Retention Components

World Motors Corporation 199X XYZ Safe Rider 2-door Coupe

(3) Contractor's Name and Address such as

COMPLIANCE TESTING LABORATORIES, INC. 4335 West Dearborn Street Detroit, Michigan 48090-1234

NOTE: DOT SYMBOL WILL BE PLACED BETWEEN ITEMS (3) AND (4)

- (4) Date of Final Report completion
- (5) The words "FINAL REPORT"
- (6) The sponsoring agency's name and address as follows

U. S. DEPARTMENT OF TRANSPORTATION National Highway Traffic Safety Administration Safety Assurance Office of Vehicle Safety Compliance Room 6115 (NSA-32) 400 Seventh Street, SW Washington, DC 20590

B. FIRST PAGE AFTER FRONT COVER

A disclaimer statement and an acceptance signature block for the COTR shall be provided as follows:

This publication is distributed by the U. S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared By:

Approved By:
Approval Date:
FINAL REPORT ACCEPTANCE BY OVSC:
Accepted By:
Acceptance Date:

C. SECOND PAGE AFTER FRONT COVER

A completed Technical Report Documentation Page (Form DOT F1700.7) shall be completed for those items that are applicable with the other spaces left blank. Sample data for the applicable block numbers of the title page follows.

Block 1 — REPORT NUMBER

206-ABC-9X-001 (or 206-ABC-0X-001 after year 1999)

Block 2 — GOVERNMENT ACCESSION NUMBER

Leave blank

Block 3 — RECIPIENT'S CATALOG NUMBER

Leave blank

Block 4 — TITLE AND SUBTITLE

Final Report of FMVSS 206 Compliance Testing of Door Locks and Door Hinges from a 199X XYZ Safe Rider 2-door coupe, Part Nos. 8456782 & 9123123

Block 5 — REPORT DATE

March 7, 199X (or 200X)

Block 6 — PERFORMING ORGANIZATION CODE

ABC

Block 7 — AUTHOR(S)

John Smith, Project Manager Bill Doe, Project Engineer

Block 8 — PERFORMING ORGANIZATION REPORT NUMBER

ABC-DOT-XXX-001

Block 9 — PERFORMING ORGANIZATION NAME AND ADDRESS

ABC Laboratories 405 Main Street Detroit, MI 48070-1234

Block 10 — WORK UNIT NUMBER

Leave blank

Block 11 — CONTRACT OR GRANT NUMBER

DTNH22-9X-D-12345

Block 12 — SPONSORING AGENCY NAME AND ADDRESS

U.S. Department of Transportation National Highway Traffic Safety Administration Safety Assurance Office of Vehicle Safety Compliance (NSA-32) 400 Seventh Street, SW, Room 6115 Washington, DC 20590

Block 13 — TYPE OF REPORT AND PERIOD COVERED

Final Test Report Feb. 15 to Mar. 15, 199X

Block No. 14 — SPONSORING AGENCY CODE

NSA-32

Block 15 — SUPPLEMENTARY NOTES

Leave blank

Block 16 — ABSTRACT

Compliance tests were conducted on Door Locks and Door Hinges from a 199X XYZ Safe Rider 2-door coupe passenger car in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-206-0X for the determination of FMVSS 206 compliance. Test failures identified were as follows:

None

NOTE: Above wording must be shown with appropriate changes made for a particular compliance test. Any questions should be resolved with the COTR.

Block 17 — KEY WORDS

Compliance Testing Safety Engineering FMVSS 206

Block 18 — DISTRIBUTION STATEMENT

Copies of this report are available from

National Highway Traffic Safety Administration Technical Information Services (TIS) Room 5108 (NAD-40) 400 Seventh Street, SW Washington, DC 20590 Telephone No.: 202-366-4946

Block 19 — SECURITY CLASSIFICATION OF REPORT

Unclassified

Block 20 — SECURITY CLASSIFICATION OF PAGE

Unclassified

Block 21 — NUMBER OF PAGES

Add appropriate number

14. REPORTS....Continued

Block 22 — PRICE

Leave blank

14.3.4 TABLE OF CONTENTS

Final test report Table of Contents shall include the following:

Section 1 Purpose of Compliance Test

Section 2 Compliance Test Data Summary

Section 3 Test Data

Section 4 Test Failure Details (if applicable)

Appendix A Interpretations or Deviations From FMVSS 206

Appendix B Test Equipment List and Calibration Information

Appendix C Photographs

15. DATA SHEETS

DATA SHEET 1 INSPECTION DATA - FMVSS 206

TEST	GROUP NO.:;	INSPECTION DATE:
TESTI	NG LABORATORY:	
LABO	RATORY TECHNICIAN(S) :	
VEHIC	CLE MANUFACTURER:	
VEHIC	CLE MAKE/MODEL:	
	E INFORMATION:	
A.	DOOR TYPE:	
B.	MANUFACTURER:	
C.	MARKINGS:	
	UPPER:	
	LOWER:	
D.	APPARENT MATERIALS:	
E.	DIMENSIONS AND DESCRIPTION:	
	UPPER:	
	LOWER:	
F.	STAMPED AND FORMED, BOLTING M	OUNTING:

(Continued on next page)

LATC	HINFORMATION:
A.	DOOR TYPE:
B.	MANUFACTURER:
C.	MARKINGS:
	LATCH:
	STRIKER:
D.	APPARENT MATERIALS:
E.	DIMENSIONS AND DESCRIPTION:
	LATCH:
	STRIKER:
COM	MENTS:
RECC	RDED BY: DATE:
APPR	OVED BY:

(Continued on next page)

DATA SHEET 2A HINGED SIDE DOORS EXCEPT CARGO TYPE DOORS SUMMARY OF TEST RESULTS

	ASS/ AIL**
11,000	
4,450	
8,900	
4,450	
11,000	
8,900	
nts are NOT met. equired loads.	
NOITION	
	LOAD (N) MODE* F/

15.	DAT	A SHEETSContinued	
B.	HING	6E –	CONDITION
	(1)	Longitudinal Load	
	(2)	Transverse Load	
REM	ARKS:		
REC	ORDEI	D BY:	DATE:
APP	ROVED) BY:	

TEST DATE: _____

15. DATA SHEETS....Continued

A.

TEST GROUP NO.: _____;

DATA SHEET 2B HINGED CARGO-TYPE SIDE DOORS SUMMARY OF TEST RESULTS

GROUP NO.	VEHICLE MODEL	TEST DATE	APPLIED TEST LOAD (N)	REQUIRED LOAD (N)	FAILURE MODE*	PASS FAIL*
1	FULL LATCH	TEOT BITTE	LOAD (N)	11,000	WODE	TAIL
2	Longitudinal Load FULL LATCH			8,900		
	Transverse Load HINGE			·		
3	Longitudinal Load HINGE			11,000		
4	Transverse Load			8,900		
L	ATCH –			CONDITION		
* PASS REMAR		l be based upor	n FMVSS 206 requi	red loads.		
	1) Longitudinal	l oad		CONDITION		
(r) Longitudinar	Load				
	Full Latch					
(2	2) Transverse Loa	ıd				
	Full Latch					
3. H	IINGE –					
(1	1) Longitudinal	Load				
(2	2) Transverse L	_oad				
REMAR	KS:					
RECOR	DED BY:			DATE:		
001				<i>DI</i> (1 L.		_

DATA SHEET 2C SLIDING SIDE DOORS SUMMARY OF TEST RESULTS

TEST GROUP NO.:;						
INDICAT	E P-PASS (OR F-FAIL				
GROUP NO.	VEHICLE MODEL	TEST DATE	APPLIED TEST LOAD (N)	REQUIRED LOAD (N)	FAILURE MODE*	PASS FAIL*
1	Transverse Load Test			17,800		
* FAILUI	RE MODE shal	ll only apply wher	n load requirements	are NOT met.		
** PASS	/FAIL criteria s	hall be based upo	on FMVSS 206 requ	ired loads.		
REMAR	KS:					
RECOR	DED BY:			DATE:		_
APPRO\	/ED BY:					

DATA SHEET 2D HINGED BACK DOORS SUMMARY OF TEST RESULTS

TEST GF	EST GROUP NO.:; TEST DATE:									
INDICAT	E P-PASS O	R F-FAIL								
GROUP NO.	VEHICLE MODEL	TEST DATE	APPLIED TEST LOAD (N)	REQUIRED LOAD (N)	FAILURE MODE*	PASS/ FAIL**				
1	FULL LATCH Load Test 1			11,000						
2	SEC. LATCH			4,450						
3	FULL LATCH			8,900						
4	ICATE P - PASS OR F - FAIL DOUP			4,450						
5	FULL LATCH			8,900						
6	HINGE			11,000						
7	HINGE			8,900						
8	HINGE			8,900						
REMARK	KS:									
A. LA	ATCH –		CON	DITION						
(1) Load Test	1								
NO. MODEL TEST DATE LOAD (N) LOAD (N) 1										
	Secondary	Latch -				 				
(2) Load Test	2								
·		_								

(Continued on next page)

15.	DATA	A SHEETSContinued	
	(3)	Load Test 3	
		Full Latch	
B.	HING	E –	
	(1)	Load Test 1	
	(2)	Load Test 2	
	(3)	Load Test 3	
REMA	ARKS:		
RECC	RDED) BY:	DATE:
APPR	OVED	BY:	

DATA SHEET 2E SLIDING REAR DOORS SUMMARY OF TEST RESULTS

TEST G	GROUP NO.:	;		TEST DATE	:	
INDICA	TE P-PASS OF	R F-FAIL				
Group No.	VEHICLE MODEL	TEST DATE	APPLIED TEST LOAD (N)	REQUIRED LOAD (N)	FAILURE MODE*	PASS/ FAIL**
1	Longitudinal Load Test			17,800		
* FAILU	IRE MODE shall o	only apply when	load requirements	are NOT met.		
** PASS	S/FAIL criteria sha	all be based upo	n FMVSS 206 requ	uired loads.		
REMAF	RKS:					
RECOF	RDED BY:			DATE:		
APPRO	VED BY:					

DATA SHEET 3 EQUIPMENT LIST AND CALIBRATION RECORD

TEST GROUP NO.:;	INSPECTION DATE:
TESTING LABORATORY:	
NOTE: Information to be included for each iter	m of test instrumentation is as follows:
EQUIPMENT DESCRIPTION:	
EQUIPMENT MANUFACTURER:	
TYPE AND/OR MODEL:	
SERIAL NUMBER:	
LIMITS:	
ACCURACY:	
FREQUENCY OF CALIBRATION:	
EXPIRATION OF CALIBRATION:	
USED ON TEST NUMBER:	
REMARKS:	
RECORDED BY:	
APPROVED BY:	

16. FORMS

LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS 206	TEST DATE:
LABORATORY:	
CONTRACT NO.:;	
LABORATORY PROJECT ENGINEER'S NAME:	
TEST SPECIMEN DESCRIPTION -	
VEHICLE MFR. & MODEL:	
COMPONENT MFR:	
IDENTIFICATION NO:	
PART NO.:	
TEST FAILURE DESCRIPTION:	
FMVSS REQUIREMENT, PARAGRAPH:	
NOTIFICATION TO AULTO A (COTD):	
NOTIFICATION TO NHTSA (COTR):	
DATE:	BY:
REMARKS:	

16. FORMS....Continued

INVENTORY AND PROGRAM SCHEDULE RECORD FMVSS No. 206

Grp No.	Mfr Model	Recd	Fixture Compl	Latch Long. Prim.	Latch Long. Sec.	Latch Trans Prim	Latch Trans Sec.	Latch Load 3 Prim.	Hinge Long.	Hinge Trans	Hinge Ortho	Report Sent Date
001												
002												
003												
004												
005												
006												
007												
800												
009												
010												

REMARKS: